

# ***Headquarters U.S. Air Force***

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***Integrity - Service - Excellence***

## **Critical Path Planning Tools**

**(Ver 1.2)**



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**HQ AFCEE/ERC**

**AFCEE Technology Transfer Workshop**

**29 - 31 Jan 01**

**San Antonio, TX**



# ***Critical Path Planning (CPP) Tools***

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- **Identify users and purpose of the CPP Tools**
- **Present key elements of the tools**
- **Examine the CPP Tools in a little more detail**
- **Highlight complementary tools being developed**
- **Demonstrate the CPP Tools**



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# **CPP Tools Users and Purpose**



# ***CPP Tool Users***

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- **Base RPMs**
- **Regulatory Agents**
- **Community (RABs)**
- **Service Agents (AFCEE/COE)**
- **Contractors**
- **Different users may use different CPP Tools**

# *Purpose of CPP Tools*

- Assist project teams to achieve site closeout more quickly with tools to help...
  - Understand complex CERCLA processes
  - Promote strategic planning built on required CERCLA processes
  - Offer project teams a common understanding of actions needed to move forward
  - Identify critical path activities that may cause delays





# ***Purpose of Critical Path Planning Tools (Cont.)***

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- **CPP Tools help managers identify critical decisions**
  - **Who owns the decisions**
  - **What is the decision making process**
  - **What is the schedule for completing the process**
- **CPP Tools suggest streamlining options at appropriate points in the CERCLA processes so as to implement more timely action**



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# Key Elements of the CPP Tools



# *Key Elements of CPP Tools*

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- **TOOL #1** - Process Flowcharts present a conceptual overview of CERCLA cleanups
- **TOOL #2** - Project schedules (Gantt charts)
  - Identify critical decision points in the process
  - Provide task-by-task critical path scheduling templates
- **TOOL #3** - Checklists discuss
  - Management issues for each CERCLA phase
  - Streamlining concepts that suggest alternatives
- The tools are linked electronically
  - Jump from a real **project schedule** to see the CERCLA **process** it implements or consider alternatives to **streamline** the work and jump back to the **schedule**

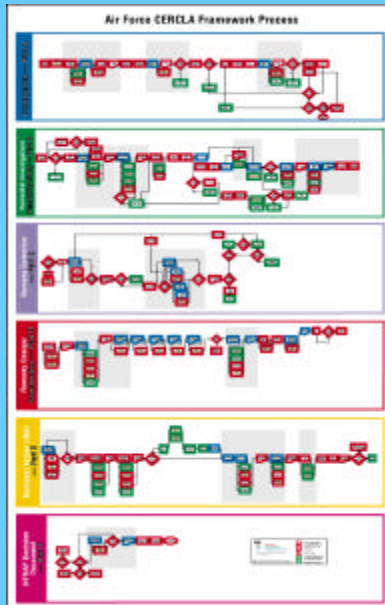




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# Key Elements of CPP Tools (Cont.)

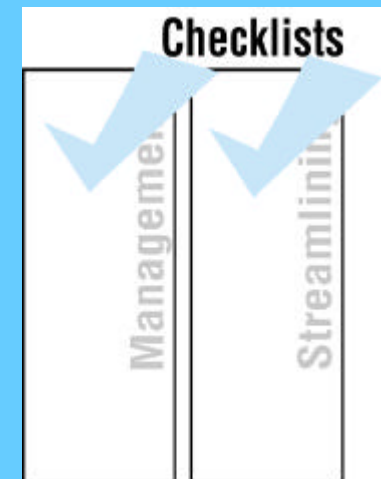
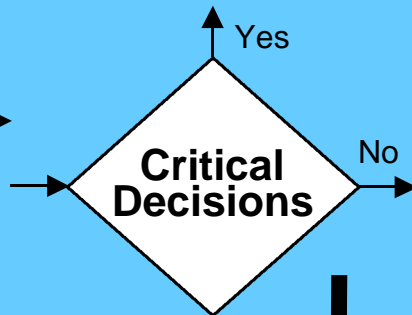
## CERCLA Processes



**Budgeting - Contracting  
Regulatory Review**

## Project Management

ID	Task Name	Year 1				Year 2			
		Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4
23	RFP Process								
67	RFP GOW (Checklist: RI Investigation Preparation)								
83	RFP Workplan								
90	Phase I Field Investigation								
91	Sub-Contracting by Prime Contractor								
92	Selection of Laboratory								
93	Audit of Laboratory (Optional)								
94	Site Preparation/Mobilization								
95	RI Phase I Field Work								
96	Laboratory Analysis								
97	Receive Raw Lab Results								
98	Review Raw Lab Results								
99	Data Validation								
100	Data Assessment Usability Review								
101	Decision Point: RI Midpoint Assessment								
102	RI Phase II (Optional)								
103	Phase II Field Work								





# ***Key Assumptions of the Tools***

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- **Focus on CERCLA cleanup process**
- **Follows a single site from Discovery until No Further Remedial Action Planned**
- **Regulatory flexibility allows for multiple different routes to cleanup**
- **“Optional” approaches provided**
  - **When an alternate path is possible**
  - **When community relations may be appropriate**
  - **When budgeting, contracting and regulatory processes may be required**



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# ***CPP Tool Products***

- The CPP Tools may be downloaded from
  - AFCEE Web Page - search products for “Critical Path”
  - AFBCA Web Site at  
<http://208.219.168.5/QuickPlace/CPT/Main.nsf?OpenDatabase>
- CERCLA flowcharts viewed on computer or printed
- CERCLA Gantt charts open in MS Project 95, 98, 2000
- Critical Path Planning Tools binder
  - Tabbed notebook with tool components
  - Tools Provided on CD-ROM
  - Poster sized flowcharts



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# The CPP Tools In More Detail: Tool Functions and Relationships



# ***TOOL #1 - Process Flowcharts***

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- **Four sets of interrelated flow charts**

- **CERCLA Process Framework**
- **Budgeting**
- **Contracting**
- **Regulatory Review**

- **Flow charts are linked to each other and to other CPP Tool elements**

- **Each chart incorporates regulatory requirements and common practices**

**PA/SI  
RI/FS  
Remedy Selection  
Remedial Design  
Remedial  
Construction  
Removal/ IRA  
NFRAP/Close-out**



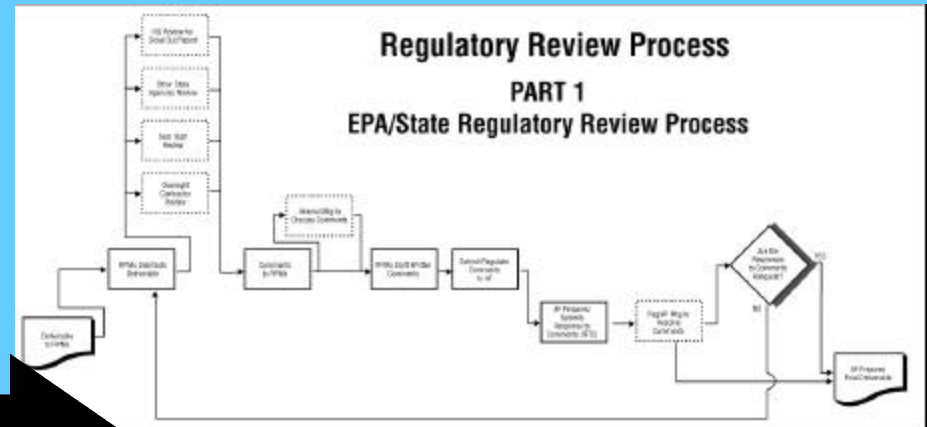
# ***Flowcharts Reflect Common Approaches***

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- **Flowcharts:**
  - **Offer optional changes to standard processes where appropriate (e.g. removal actions, FS starts, RD starts)**
  - **Show interaction of CERCLA with other processes**
  - **Diagram potential bottlenecks**
  - **Emphasize the importance of collaborative decision-making by showing “Do-Redo” loops**



## CERCLA Framework Links to Other Processes



## And to Other Elements of the Toolbox



# ***TOOL #2 - GANTT Charts***

## ***(Project Schedules)***

- Project schedules built in Microsoft Project
- Tasks are built around the standard process of “primary” and “secondary” deliverables found in the Model Federal Facilities Agreement for NPL Sites

### **Primary Documents**

- Assume 45 days for initial regulatory review of draft
- Assume Document becomes final after 30 day regulatory review of draft final
- Adds potential primary documents to RD/RA stage

### **Secondary Documents**

- Assume 30 days for initial regulatory review
- Revisions of secondary document usually occur in primary document





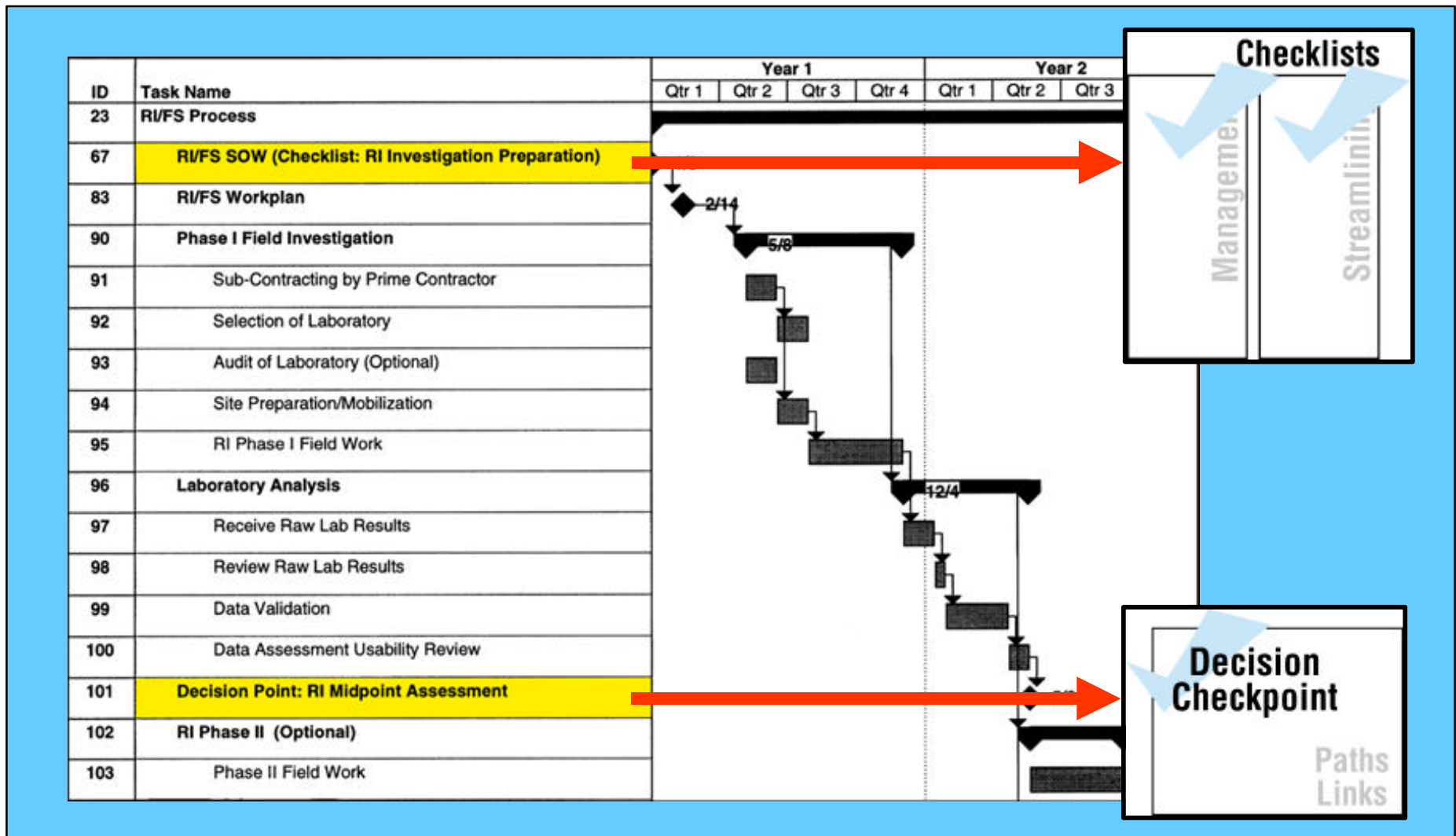
## ***TOOL #2 - GANTT Charts*** ***(Project Schedules)***

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- May be opened in MS Project 95, 98, and 2000
- Templates may be used as the basis of real schedules
  - Tasks have default links and durations
  - Use or delete “optional” tasks identified in templates
  - Add; delete; re-link; or change the duration of tasks in the real schedule as needed
  - Import supplemental contracting & budgeting schedules into real schedules
  - Tiered structure allows users to view Gantt charts at various levels of detail
  - Hot links to critical decision issues, flowcharts, and checklists carryover into real schedules



# Gantt Chart Hot Links Help User Plan & Streamline





# Example Critical Decision Point

## ■ Decision point for Ending Remedy Selection

The screenshot shows a software window titled "Electronic Toolbox" with a menu bar (File, Edit, Bookmark, Options, Help) and a toolbar (Help Topics, Back, Options, Title Screen, Legend, Gantt, Zoom). The main content area is titled "Ending Remedy Selection" and contains two sections:

**Possible Process Paths**

No Action ROD (NFRAP Category 3)	Go to NFRAP ( <a href="#">NFRAP Flowchart</a> or <a href="#">Gantt Chart</a> )
Skip Design, Go to Remedial Action	Go to Remedial Action ( <a href="#">Remedial Action Flowchart</a> or <a href="#">Gantt Chart</a> )
Begin Remedy Design	Go to Remedial Design ( <a href="#">Remedial Design Flowchart</a> or <a href="#">Gantt Chart</a> )

**Links to Related Checklists**

- [Remedy Design](#)
- [Remedial Action](#)
- [NFRAP – Is It an Option?](#)



## ***TOOL #3 - Checklists***

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- **Management Checklists facilitate planning**
  - **Management Checklists help plan ahead.**
  - **The next slide is an example of the Remedy Selection Checklist**
- **Streamlining Checklists focus on initiatives**
  - **In the following example, the Remedy Selection Checklist directs us to consider screening initiatives like Rational National Standards or land use directives**



# Example Mgmt. Checklist: Remedy Selection

The screenshot shows a software window titled "Electronic Toolbox" with a menu bar (File, Edit, Bookmark, Options, Help) and a toolbar (Help Topics, Back, Options, Title Screen, Legend, Gantt, Zoom). The main content area is titled "REMEDY SELECTION" and contains a checklist. The checklist includes four topics: TOPIC #1 - What are the cleanup goals?, TOPIC #2 - Is the community supportive?, TOPIC #3 - Are the reviewers prepared?, and TOPIC #4 - Keep thinking ahead. Below these topics, there is a section for TOPIC #1 - CLEANUP GOALS, which includes a paragraph about transitioning from FS to Design and Action, a list of questions, a link to a Streamlining Checklist, and a paragraph about contingencies. The interface has a yellow background for the checklist content and a blue header bar.

**Electronic Toolbox**

File Edit Bookmark Options Help

Help Topics Back Options Title Screen Legend Gantt Zoom

## REMEDY SELECTION

- TOPIC #1 - What are the cleanup goals?
- TOPIC #2 - Is the community supportive?
- TOPIC #3 - Are the reviewers prepared?
- TOPIC #4 - Keep thinking ahead.

### TOPIC #1 - CLEANUP GOALS

*To transition smoothly from FS to Design and Action, review the following issues during Remedy Selection:*

- What are the cleanup goals for the site?
- Are cleanup goals adequately or overly protective, given the proposed future land use at the site?
- [Streamlining Checklist Link: Screening – RNSI & Land Use Directive](#)
- Given the contaminant and hydrogeologic characteristics at the site, are cleanup goals likely to be attainable? If uncertain, which is likely to change, the Remedy or the cleanup goal itself?

*If attainment of cleanup goals is uncertain, given site circumstances and available technologies, build contingencies into the Decision Document to reflect this possibility. This might include the following:*

- Incorporating decision-tree analysis points into the ROD and contingencies based upon the outcomes. For example, remedies may include capping and groundwater extraction, with the contingency that if groundwater goals are not attained in X years, a hot spot removal at the source will be completed.
- Contingency analysis and presentation in the ROD may help eliminate the need for additional documents (including Explanation of Significant Differences and ROD Amendments) in the future.





# Streamlining Checklist: RNSI & Land Use Directive

**Electronic Toolbox**

File Edit Bookmark Options Help

Help Topics Back Options Title Screen Legend Gantt Zoom

## SCREENING

### RATIONAL NATIONAL STANDARDS INITIATIVE (RNSI)

*Relates contaminant levels with realistic exposure scenarios agreed upon by project team, allowing prioritization of sites based upon relative levels of estimated risk. Uses pre-calculated numbers based upon specific risk scenarios to:*

- Establish priorities among sites.
- Identify contaminants and areas of concern.
- Facilitate a sensitivity analysis of the costs of a particular action with respect to land use and the nature of the remedy.

### SPECIFICS

- RNSI is tied to four different types of land use: residential, industrial, recreational, and open space. This allows an early focus on land use in the investigation.
- Realistic predictions about exposure scenarios lead to a solid baseline against which to compare contaminant levels at the area or site.
- Result: a more targeted, focused analysis, because it is then possible to eliminate some pathways and/or analytes from evaluation.

### LAND USE DIRECTIVE

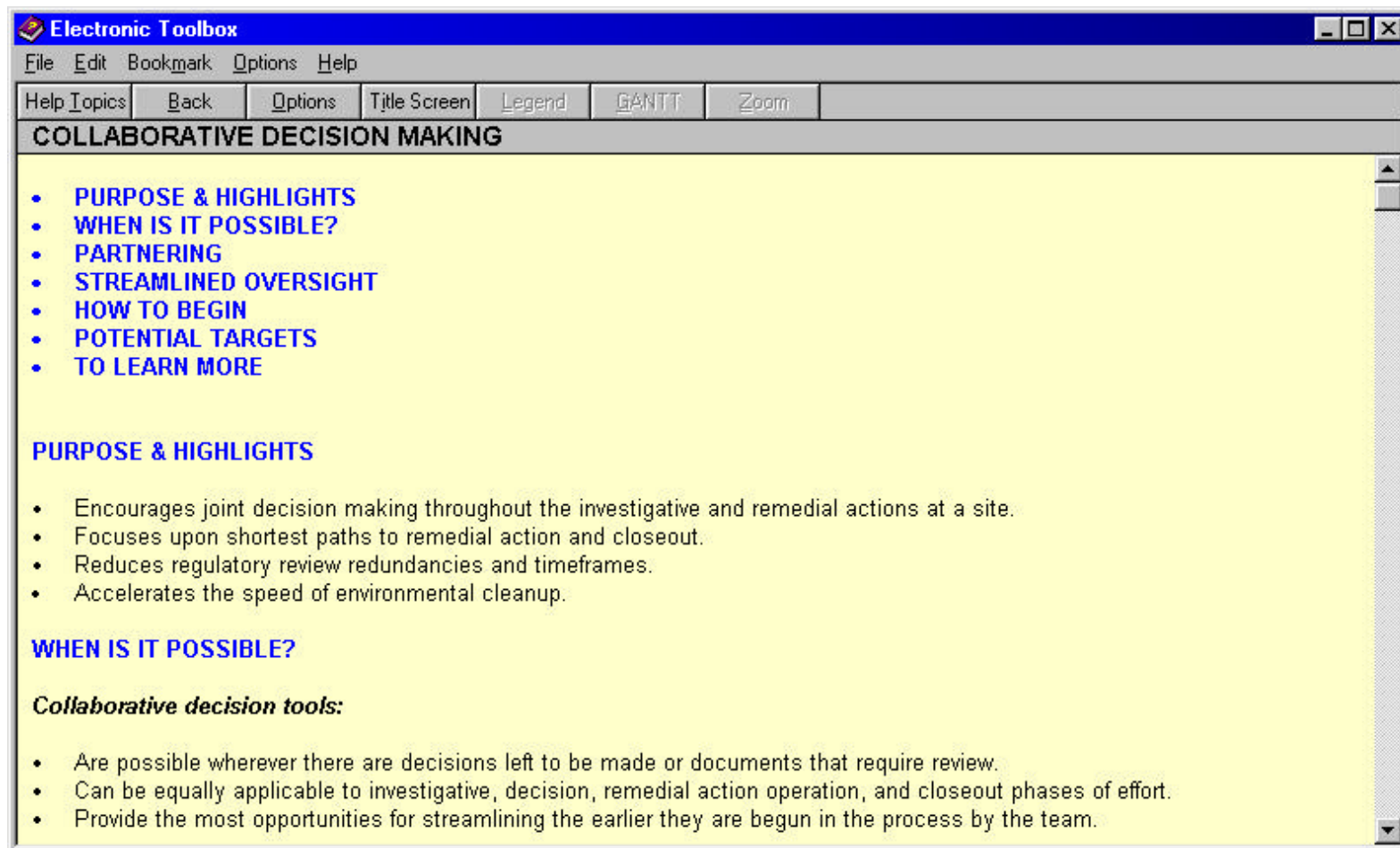
*EPA guidance encourages linking remedial decision making with reasonably anticipated future land use at the site. The determination of anticipated land use can help target the risk assessment for surface soil exposure and may ultimately lead to more cost-effective cleanups. Here's how to begin:*

- Involve the community in land use determination and site decisions.
- Understand the community's expectations with respect to land use, so the selected remedy meets the needs of those impacted by site contamination and cleanup.



# Streamlining Checklist: Collaborative Decision Making

## ■ Another example of a streamlining checklist initiative

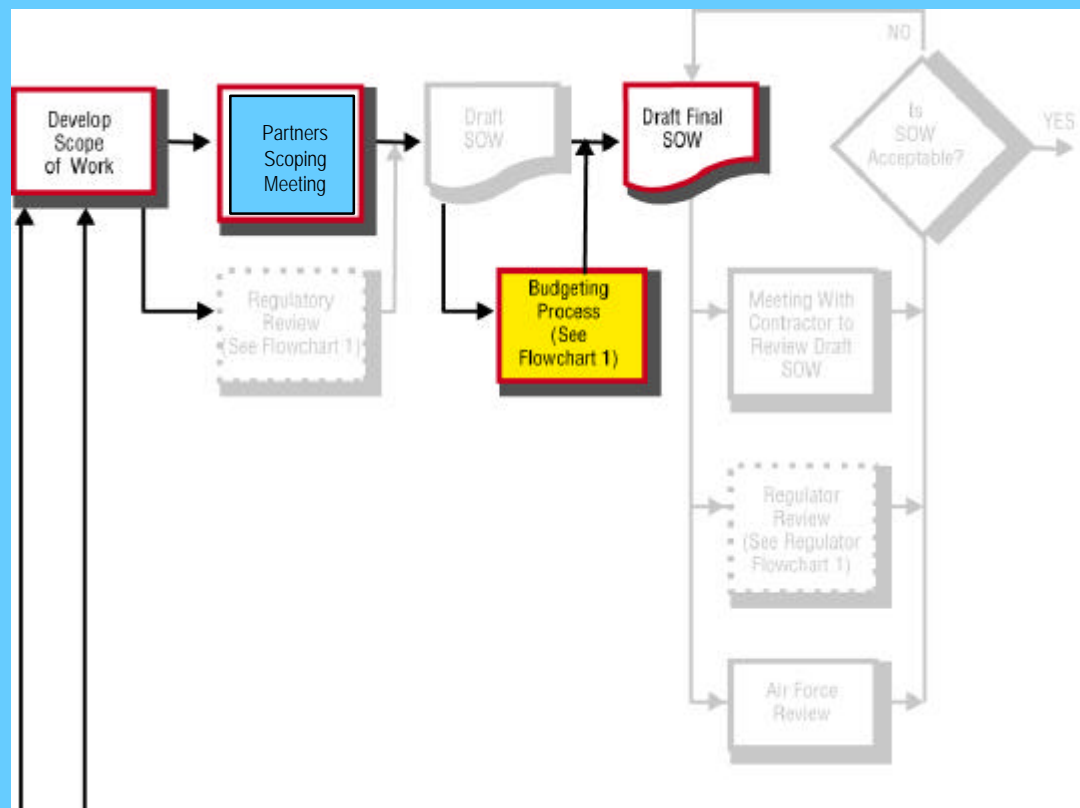




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# Using CPP Tools to Streamline

## Apply Collaborative Decision Making



## Making it Better: A Partnering Approach





# Complementary Tools



# ***Complementary Tools Being Developed***

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## ■ **Crosswalk**

- **Integrates Schedule-To-Complete (STC) with Cost-To-Complete (CTC) into project management schedules**
- **Compares STC dates reported in the AFBCA Management Information System (AFRIMS equivalent) with same data in project management schedules (95% complete)**
- **Summarizes and reports cost data tracked in project management schedules as the CTC by year by site for building the CTC in the MIS. (85% complete)**



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# Example Crosswalk Printout

## SS005 Storage Yard Site S-3

	Start Date		End Date	
	Gantt	MIS	Gantt	MIS
PA		07/31/1981		02/28/1982
SI		08/29/1983		01/25/1984
RI	01/04/1999	01/04/1999	10/13/2000	09/20/2000
FS	03/09/2000	02/09/2000	03/20/2001	05/02/2001
ROD	05/09/2001	05/02/2001	---	---
RD	03/27/2001	04/25/2001	11/06/2002	10/09/2002
RA-C	08/29/2002	10/09/2002	09/22/2003	03/20/2003

	Start Date		End Date	
	Gantt	MIS	Gantt	MIS
RIP	04/21/2003	03/20/2003	---	---
RA-O	09/22/2003	03/21/2003	09/20/2018	09/28/2018
OPS	09/22/2005	09/30/2006	---	---
RC	09/21/2018	09/28/2018	---	---
LTM	09/20/2018	10/01/2018	09/22/2021	06/09/2021
SC	06/02/2022	06/09/2021	---	---
IRA				

### Legend:

01/01/2000	Estimated date	01/01/2000	MIS Date differs from Gantt chart date by 60+ days and should be reviewed
01/01/2000	Actual date	01/01/2000	MIS Date occurs in a different FY than Gantt chart date and should be reviewed
01/01/2000	Elapsed date	01/01/2000	Actual MIS Date differs from actual Gantt chart date and should be reviewed

*Note: Phases and milestones that are slipping should be reviewed in the Gantt chart using a "Critical Path" filter in order to identify tasks that could potentially be optimized to minimize schedule delays. Phases and milestones ahead of schedule should similarly be reviewed to determine if subsequent tasks can occur sooner, thereby expediting cleanup.*

10:43 PM Sunday, January 21, 2001

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# CPP Tools and Crosswalk Demonstrations